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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,988	10/31/2003	Brian M. Sager	NSL-014	8858
27652	7590	02/08/2005	EXAMINER	
JOSHUA D. ISENBERG 204 CASTRO LANE FREMONT, CA 94539			PATTERSON, MARC A	
			ART UNIT	PAPER NUMBER
			1772	
DATE MAILED: 02/08/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/698,988

Applicant(s)

SAGER ET AL.

Examiner

Marc A Patterson

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1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 12-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>10/31/03</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 – 11, drawn to a method of making a film, classified in class 427, subclass 60.
 - II. Claims 12 – 24, drawn to a film, classified in class 428, subclass 34.1.
2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by a materially different method, such as a method in which the layers are laminated, rather than coated.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Joshua Isenberg on January 5, 2005 a provisional election was made with traverse to prosecute the invention of II, claims 12 - 24. Affirmation of this election must be made by applicant in replying to this Office action. Claims

1 – 11 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 12 – 14, 20 – 21 and 23 – 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Singh et al (WO00/78540).

With regard to Claim 12, Singh et al disclose a laminate film (page 40, lines 15 – 19) comprising layers of a nanocomposite (page 39, lines 13 – 14) layered silicates (page 29, lines 14 – 19) dispersed in a polymer material (page 30, lines 29 – 32); the polymer material is polystyrene or polyvinylchloride (page 32, lines 21 – 22), therefore a polymer formed from a non – fluorinated styrene polymer precursor; Singh et al therefore discloses a film in which polystyrene layers alternate with polyvinylchloride layer; the layers of the film also comprise a polymer having good barrier properties (page 32, lines 11 – 14) and the film is therefore a nanolaminate barrier film; the silicate is an inorganic material (page 32, lines 4 – 6) and polystyrene is an organic material, and the nanocomposite is therefore both an organic and an inorganic material, and is therefore an inorganic / organic hybrid, and the laminate therefore comprises a plurality of layers of an inorganic material and a plurality of layers of an organic material, wherein the layers of organic material alternate with the layers of inorganic material.

With regard to Claim 13, as stated above, Singh et al disclose a laminate of the film, and therefore disclose a laminate which includes at least two layers of the film; Singh et al therefore disclose a laminate having between 100 and 1000 layers.

With regard to Claim 14, Singh et al disclose a film having any desired thickness (page 40, lines 16 – 22) and therefore disclose a film having a thickness of 100 nm.

With regard to Claims 20 – 21, Singh et al disclose organic layers comprising a copolymer of polystyrene and polyethylene (alloy; page 32, lines 17 – 26), which comprised methyl, and therefore disclose a precursor, styrene, to which a non – polar hydrophobic group comprising methyl has been added.

With regard to Claims 23 – 24, Singh et al disclose the use of the laminate film in the making of a beverage container (page 10, lines 28 – 31) and therefore disclose an article, which is a beverage, having the laminate film disposed on the surface.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 16 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (WO 00/78540).

Singh et al disclose a film as discussed above. With regard to Claims 16 – 17, Singh et al fail to disclose a film which has a permeability to oxygen less than 1 cc/m²/day and a film which

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has a permeability to water vapor of less than $1\text{g/m}^2/\text{day}$. However, Singh et al teach that the permeability of oxygen and water vapor (page 64, lines 16 – 17) is dependent on the amount of silicate (usually small amounts of the silicate are required to achieve good high gas barrier properties; page 64, lines 25 – 29).

Therefore, one of ordinary skill in the art would have recognized the utility of varying the amount of silicate to obtain the desired permeabilities. Therefore, the permeabilities would be readily determined by through routine optimization of the amount of silicate by one having ordinary skill in the art depending on the desired use of the end product as taught by Singh et al. It therefore would be obvious for one of ordinary skill in the art to vary the amount of silicate in order to obtain the desired permeabilities, since the permeabilities would be readily determined through routine optimization by one having ordinary skill in the art depending on the desired end result as shown by Singh et al.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (WO 00/78540) in view of Fibiger et al (U.S. Patent No. 6,818,163 B1).

Singh et al disclose a film comprising a nanocomposite laminate comprising silicate as discussed above. Singh et al fail to disclose a laminate which is substantially transparent.

Fibiger et al teach a nanocomposite (films where the layers are 100 nanometers thick; column 6, lines 16 – 19) comprising silicate (column 4, lines 10 – 11) which are substantially transparent (column 6, lines 29 – 34) for the purpose of obtaining a film that allows the passage of ultraviolet light (the film is ultraviolet transparent; column 6, lines 29 – 34). One of ordinary skill in the art would therefore have recognized the advantage of providing for the transparency

of Fibiger in Singh et al, which is a nanocomposite, depending on the desired passage of light of the end product.

It therefore would be obvious for one of ordinary skill in the art to provide for transparency in Singh et al in order to obtaining a film that allows the passage of ultraviolet light as taught by Fibiger et al.

10. Claims 18 – 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (WO 00/78540) in view of Ogawa et al (U. S. Patent No. 5,372,888).

Singh et al disclose a film comprising barrier properties, as discussed above. With regard to Claims 18 – 19, Singh et al fail to disclose a superhydrophobic layer comprising fluoroalkylsilane.

Ogawa et al teach the coating of a polymer surface (column 4, lines 23 – 27) with a fluoroalkylsilane layer (alkyl fluoride – containing chlorosilane layer), therefore a superhydrophobic layer, for the purpose of obtaining a layer that is anti – contaminating (column 3, lines 55 – 59). One of ordinary skill in the art would therefore recognize the advantage of providing for the layer of Ogawa et al in Singh et al, which is a polymer and therefore comprises a polymer surface, depending on the desired anti – contamination properties of the end product.

It therefore would have been obvious for one of ordinary skill in the art to have provided for a superhydrophobic layer comprising fluoroalkylsilane in Singh et al in order to obtain a layer that is anti – contaminating as taught by Ogawa et al.

11. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (WO 00/78540) in view of Brinker et al (U. S. Patent No. 6,264,741 B1).

Singh et al disclose barrier film that is a nanocomposite as discussed above. The film comprises a surfactant (page 33, lines 19 – 20). Singh et al fail to disclose a surfactant comprising a Gemini surfactant.

Brinker et al teach the use of a Gemini surfactant (column 4, lines 45 – 46) in a nanocomposite (column 3, lines 56 – 57) for the purpose of obtaining a nanocomposite having high capacitance (column 3, lines 51 – 55). One of ordinary skill in the art would therefore recognize the advantage of providing for the Gemini surfactant of Brinker et al in Singh et al, which is a nanocomposite, depending on the desired capacitance of the end product.

It therefore would have been obvious for one of ordinary skill in the art to provide for a Gemini surfactant in Singh et al in order to obtain a surface having high capacitance as taught by Brinker et al.

1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc A Patterson whose telephone number is 571-272-1497. The examiner can normally be reached on Mon-Fri 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Marc Patterson 2/5/05
Marc A. Patterson, PhD.
Examiner
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